

Climate Change Adaptation Advisory Committee

Overview for the Massachusetts Legislature on Climate Change Adaptation

Presentation Title: Presentation by the Local Economy and Government Subcommittee

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CLIMATE CHANGE ADAPTATION

An update to the Massachusetts Legislature



LOCAL ECONOMY and GOVERNMENT

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KEY SECTORS REVIEWED

- Weather Dependent
 - Agriculture
 - Fishing
- Service Industries
 - Real Estate Management
 - Health Care
 - Higher Education
 - Tourism & Recreation
- Manufacturing
- Cultural Resources
- Vulnerable Populations
- Local Government

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KEY VULNERABILITIES

Concerns, Challenges, and Opportunities

■ **Sea Level Rise and Flooding**

- Affecting business and recreation dependent on water infrastructure
- Salt water infiltration of groundwater supplies and agricultural water storage
- Affect real estate use, infrastructure and transportation routes
- Waterfront recreation attractions

■ **Rising Temperatures**

- Lower winter heating costs but higher summer cooling costs, related impacts to vulnerable populations
- Extended seasons for tourism and agriculture, but with increased operational costs and a potential shift away from seasonal workers to other labor pools
- Increased need for irrigation
- Potential alterations in agricultural crops and forest cover
- Impact on construction labor and other outdoor jobs due to health risks at higher temperatures



KEY VULNERABILITIES

■ **Precipitation**

- With other parts of the country experiencing severe drought, migration to Massachusetts of water dependent industries may occur
- Increase in flooding potential
- Increased competition for water resources – should drought occur

■ **Extreme Weather Events**

- Insurance risks/losses
- Crop losses
- Other business issues from interruptions of commerce, services
- Emergency preparedness and strain on emergency service personnel

■ **Cultural features of Massachusetts**

- Impacts on physical/real estate assets
- Protection/preservation of historical/cultural sites/landmarks
- Protection of historic assets in storage



KEY VULNERABILITIES

	Sea Level Rise		Increased Temperatures	Changing Precipitation Patterns		
	Flooding	Saltwater Intrusion		Flooding	Drought	Extreme Weather
Weather Dependent						
Agriculture	X	X	X	X	X	X
Fishing	X		X	X	X	X
Manufacturing	X	X	X	X		X
Service Industries						
Real Estate Management	X		X	X		X
Tourism and Recreation	X	X	X	X	X	X
Financial Services (Banking, Insurance)	X	X	X	X	X	X
Health Care	X		X	X	X	X
Higher Education	X	X	X	X	X	X
Government						
Emergency Preparedness	X		X	X	X	X
Public Works	X	X	X	X	X	X
Vulnerable Populations	X	X	X	X	X	X



COMMON THEMES

- Need for better information (data)
- Improving our planning paradigms – future oriented and not based on historical circumstances
- Start taking action! Do what we can now to safeguard our future! (No regret options)



Adaptation Strategies

Preparing and Learning More

- Develop better information/data
- Improve planning
- Promote research and development

Actions we can take now...

- Reduce the impact of climate change through mitigation
- Protect water as an asset
- Improve design standards
- Include market based incentives to prepare for climate change impacts
- Provide leadership to promote adaptive management
- Enhance emergency preparedness
- Educate and provide outreach
- Seize opportunities



Strategy 1: Develop Better Information /Data

- LiDAR elevation information is an immediate need which will have immediate value
 - Projecting Sea Level Rise Impacts
 - Better defined flood zones
- Science and research on potential diseases, soils research, potential crop alterations and pests, and potential hybrids
- Increase monitoring of water assets as well as coastlines, flood zones, invasive pests, disease threats
- Assess key assets at risk: historic, infrastructure, etc.
- New technologies for engineering strategies to fortify valuable infrastructure, property, historic assets



Strategy 2: Improve Planning

- Include potential vulnerabilities in planning/decision making
- Prioritize areas of redevelopment based on reduced vulnerability
- Periodically review and upgrade emergency preparedness plans and hazard mitigation plans
- Understand alternative transportation routes and supply sources
- Science and Research on mitigation strategies
- Target infrastructure funding to redirect development toward less vulnerable areas



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Strategy 3: Research and Development

- Climate change
- Improved pest controls and soil research
- Agricultural Hybrids
- Alternative Energy
- New treatment alternatives
- Engineering Designs
- Health issues
- Mitigation



Strategy 4: Reduce the Impact of Climate Change through Mitigation

- Greater efficiency in energy use
- Green technologies in energy production
- Mixed land use options (siting renewables on farmland)



Strategy 5: Protect Water as an Asset

Take steps to reduce potential competition for water:

Agricultural – Residential – Commercial Industrial – Ecological

- Improve water conservation to minimize effects of water shortages
- Increase water storage
- Expand opportunities for water recycling, including grey water
- Reduce water use in energy generation.
- Improve storm-water management to increase water recharge



Strategy 6: Improve Design Standards

- Reduce exposure to risk in “built infrastructure” (roadways, bridges, buildings)
- Improve use of “soft engineering”, preserving and improving natural systems in designs
- Expect improved engineering in procurement specifications (vertical construction, roadways/bridges, wetland protection)
- Improve management systems for higher volumes of stormwater



Strategy 7: Include market-based incentives to prepare for the impacts of climate change

- Include the predicted impact of climate change in permit decisions (required by the Global Warming Solutions Act of 2008)
- Revise mortgage banking formulas to better reflect the true cost of risk insurance over time
- Review/Reduce the exposure of government as the insurer of last resort



Strategy 8: Provide leadership

To promote adaptive management and climate change awareness throughout government, designate a central office to:

- Gather and provide updated data
- Serve as policy advisor on climate change and adaptation strategies
- Coordinate state and local activities, liaison with federal efforts
- Promote public/private collaboration on research, strategies, and implementation
- Continue to review knowledge base and information gaps, review planning needs, promote continuing actions.



Strategy 9: Enhance Emergency Preparedness

- Coastal and flood prone regions
- Local community hazard mitigation plans
- Tourist industry coordination
- Hospitals other care givers
- Neighborhood watch programs
- Vulnerable Populations
- Increased regional cooperation



Strategy 10: Provide Education and Conduct Outreach

- Improve public awareness of climate change and its impacts
- Educate public and private employers about Occupational Safety and Health Administration requirements regarding employee protections in times of high heat
- Develop education programs for those who design and maintain infrastructure for a changing world



Strategy 11: Seek Opportunities



- Leverage longer growing and tourist seasons
- Improve adaptation strategies (research and development)
- Promote research and development of new technologies, engineering strategies:
 - Trade Associations
 - Insurance Industry
 - Research Hospitals
 - Higher Education



Thank you



Questions?



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